

Abstract

There is provided a new and improved apparatus and method for rolling workpieces such as crankshafts. The apparatus has first and second rolling heads mounted at spaced positions along a common rolling arm to receive a crankshaft bearing therebetween which can then be shifted relative to one another along the common rolling arm to close the heads or rolling tools for clamping onto the workpiece. The in-line clamping action and force provided by the tools on the rolling arm are created by actuation of a tall, thin cylinder assembly including a number of aligned individual cylinders sized to keep the width of the cylinder assembly to a minimum so that all of the rolling arms can likewise be of a thin construction pivotally mounted on one side of the crankshaft and axially spaced according to the crankshaft bearing spacing for rolling all of the bearings in a single rolling operation. A strain sensor can be utilized to generate clamping force readouts that are based on the amount of structural deflection of the arm detected by the sensor.